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ABSTRACT

In order to keep pace with society's involvement in computer use, schools must prepare students to live and work in a society that uses computers in nearly all aspects of life. The general goal of this practicum was to develop, implement, and evaluate a plan to develop the proper use of computers in a selected school. A total of 21 primary teachers participated in a 10-month computer training in-service program. The in-service program focused on the use of the computer in the educational setting, basic computer concepts and languages, available educational software, and hands-on experience. It was anticipated that this in-service would increase the amount of time spent on computer education, increase the participants' knowledge of computers, and enable participants to demonstrate the proper use of computers in the educational setting. Evaluation data indicated that standards of performance were met for all objectives. Related materials are appended, including outlines of all 20 training sessions. (Author/RH)

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Resolving The Improper Use Of Computers
At A Selected Elementary School By
Providing Computer Training For Teachers

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NOVA UNIVERSITY

RESOLVING THE IMPROPER USE OF COMPUTERS AT A SELECTED ELEMENTARY SCHOOL BY PROVIDING COMPUTER TRAINING FOR TEACHERS

PRACTICUM I SUBMITTED TO THE FACULTY OF THE
EARLY CHILDHOOD EDUCATION PROGRAM
IN CANDIDACY FOR THE DEGREE OF

DOCTOR OF EDUCATION

BY

IRENE RODRIGUEZ

PS 015448

NOVA UNIVERSITY
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September 23, 1985
Date of Final Approval of Report

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ABSTRACT

Resolving the Improper Use of Computers at a Selected Elementary School by Providing Computer Training for Teachers. Rodriguez, Irene, 1985: Practicum Report, Nova University Ed. D. Early Childhood Education Program

Descriptors: Computer Education/Computer Literacy/Computers in Schools/Computer Curriculum/Software in Schools/Educational Software/Computer Training for Teachers/Computer Awareness

In order to keep pace with society's involvement in computer usage, schools must prepare students to live and work in a society that uses computers in nearly all aspects of life. The general goal of this practicum was to develop, implement, and evaluate a plan to develop the proper use of computers in a selected school.

Twenty-one primary teachers participated in a 10-month computer training in-service. The in-service focused on the use of the computer in the educational setting, basic computer concepts and languages, available educational software, and hands-on experience. It was anticipated that this in-service would increase the amount of time spent on computer education, increase the participants' knowledge of computers, and have participants demonstrate the proper use of computers in the educational setting.

Upon completion of the implementation stage of this practicum, data from the evaluation instruments were analyzed. It was found that the standards of performance were met for all objectives.

CHAPTER I

INTRODUCTION

Description of Community

Attendance Information (1982) suggests that all of Florida's school districts are single, county-wide districts. Florida has 67 counties and therefore has 67 public school districts. Efficiencies of operation have resulted from having county-wide school systems, except for the smallest counties. Florida has taken steps toward uniformity of education funding via the Florida Education Finance Program (FEFP). Each county contributes 3.798 mills of local county school tax revenue to FEFP, and the State Legislature allocates funds to FEFP. The county school districts then receive additional funds for education from federal sources and other local but limited school millage. The school boards may have five or seven members elected on a partisan or non-partisan basis. Superintendents of schools are elected by voters or appointed by the school board to whom they are responsible.

Florida law requires that all children from the ages of 6 to 16 are to attend school on a regular basis. Children who are 5 years old on or before October first may enter kindergarten anytime during the school year. Children who will not be 5 until October first but before January first may enter at the start of the school year. Children must be immunized against diphtheria, pertussis, tetanus, polio, measles, mumps, rubella, and have a physical examination before admission to any Florida school. Non-Florida residents must pay a $50 tuition fee for

each child at the time of enrollment. There are exemptions if the family has purchased a house in Florida; if the parent is in the United States military service, a migratory agricultural worker, or a civilian employee of the United States Government; or if the parent has filed a Declaration of Residence. Tuition exemption forms may be obtained at any school. All Florida school systems have come under legal order to desegregate.

The Hillsborough County School Board (1982a) states that the Hillsborough County public school system covers 1,050 square miles, about the size of Rhode Island. With an annual enrollment of over 110,000 students in grades kindergarten through 12th, Hillsborough County is about the 15th largest school system in the United States and the third largest in Florida. Dade/Miami and Broward/Fort Lauderdale are the two largest. Hillsborough County's school board has seven members elected on a non-partisan basis. Its superintendent of schools is appointed by the school board.

The Hillsborough School Board (1982b) shows proof that Hillsborough County offers quality education. Students' test scores have been on the decrease in much of the nation while the scores of students in Hillsborough have steadily risen in the past six years. Generally, Hillsborough students test at a national average in all grades tested, which is kindergarten through ninth, in the Comprehension Test of Basic Skills (CTBS). With 31% of Hillsborough's seniors taking the Scholastic Aptitude Test (SAT), their scores are higher than national averages.

Funding for K-12 education in Hillsborough County is provided by about 64% from the state, about 23% from the county, and about 13% from federal sources. In all elementary schools, maximum time is spent on basics, strict discipline is enforced and homework is required making all elementary schools known as being "Fundamental Schools".

In Hillsborough, there are 2 kindergarten through early childhood schools, 89 elementary schools, 1 middle school (sixth and seventh), 24 junior high schools, 13 senior high schools, and 2 Department of Education for Exceptional Students (DEES) schools (see Appendix A). Since 1970, 14 of the 89 elementary schools and 4 of the senior high schools have been built, and another 6 have been completely refurbished. All 131 schools are entirely air-conditioned permitting year round usage and providing an ideal learning environment even through Florida's many hot months.

Hillsborough's student enrollment for October 1984 was early childhood and headstart, 1,685; kindergarten and elementary, 57,256; junior high, 27,908; and senior high, 25,265; making a total enrollment of 112,114 (see Appendix B).

The pupil-teacher ratio for kindergarten is 1 teacher and 1 half-time aide for 17 pupils or 1 teacher and 1 full-time aide for 18 to 33 pupils. In primary the ratio is 1 teacher for 29 pupils, in junior high it is one teacher for 31 pupils, and in senior high the ratio is 1 teacher for 34 pupils (see Appendix C).

Since 1971 Hillsborough County has had 100% desegregation ordered by the court. All students living two miles or more from their schools are provided with bus transportation. Because of neighborhood housing patterns, 19 schools do not require cross busing.

Author's Work Setting and Role

The author is a classroom teacher at Crestwood Elementary School. Crestwood is located in a middle-class neighborhood in the northern

part of Tampa. Student enrollment on the 20th day of school for the 1984 school year was kindergarten and early childhood, 133; primary, 492; intermediate, 278; making a total enrollment of 836. Crestwood's faculty consists of 30 classroom teachers, 1 full-time and 1 part-time physical education teacher, 1 full-time and 1 part-time teacher to instruct the children in music skills, 1 teacher for special learning disabilities, 1 teacher for the emotionally handicapped (EH), 1 teacher for the emotionally mentally handicapped (EMH), 1 speech teacher, 1 part-time psychologist, 1 part-time social worker, 1 primary education program specialist (PREP), 1 curriculum specialist, 1 education consolidation and improvement act (ECIA) reading teacher, 3 ECIA reading aides, 1 early childhood teacher, 2 early childhood aides, 3 bilingual aides, and a principal (see Appendix D). The PREP specialist evaluates each primary child in the school to determine if the child has any special needs. ECIA is a federally funded program provided for children who are reading at least one year below grade level.

The Hillsborough County School Board (1983) suggests that it is the responsibility of the classroom teacher to: (a) direct and evaluate the learning experiences of the pupil in both curricular and assigned extracurricular activities; (b) have daily lesson plans available for inspection by the principal or designee; (c) provide guidance to the pupil which will promote his welfare and his proper educational development; (d) be responsible for child accounting; (e) maintain liaison with parents; (f) administer the classroom program; (g) provide for the care and protection of school property; (h) participate in the activities of the faculty; (i) cooperate with and participate in the planning and evaluation of the school program; (j) take part in the in-service education program; (k)

maintain cordial and workable relationships with colleagues; (l) supervise assigned teacher aides and be familiar with aide-negotiated contracts; (m) perform other assigned duties.

Crestwood School was provided with six computers to be used by all children in grades kindergarten through fifth as part of the classroom program. Because no student or teacher training had been conducted in the use of computers, the computers were not being properly used. Some computers were not being used at all while others were being misused, resulting in an added expense and time loss in computer usage. Providing training in the use of computers to all staff members who work with primary children did not only involve the 21 staff members, but it also contributed to the education of the 625 children with whom the staff works. This practicum involved 21 primary instructors and 625 primary children at Crestwood Elementary School.

The writer has been employed as a classroom teacher in Hillsborough County for nine years and has taught in grades first through fourth. The writer's training in computers includes a course provided through the Hillsborough County School Board, 1981; all-day computer seminar through Nova University, 1982; high tech/high touch summer institute with Nova University, 1983; and computer training classes through Hillsborough County, 1984.

The writer provided training in computer usage to all of the primary faculty members, and they in turn will train the children with whom they work.

CHAPTER II

STUDY OF THE PROBLEM

Problem Description

According to Weible and the Missouri Department of Elementary and Secondary Education (1983) it has been predicted that by 1990 everyone will be able to carry a pocket computer that gives access to an enormous amount of information. Schools must prepare students to live and work in a society that uses computers in nearly all aspects of life.

In order to try to keep up with how rapidly our society is involving itself in computer usage, many school systems have haphazardly placed computers in the schools. School systems have done this without evaluating their purchases or identifying how these computers can be maximumly used in the school setting. Many school systems have not even provided any sort of training or software for the teachers or students who are to utilize the computers.

Crestwood Elementary was provided with six computers to be used by all faculty members and students in kindergarten through fifth grade. No student or teacher training, appropriate software for an educational setting, or materials on computer usage were provided to the school. Because the computers were haphazardly placed at Crestwood, the computers were not being properly utilized. Some computers had been stored in a workroom and never used by the teachers or students, while others were being misused resulting in an added expense and time loss in computer usage. The teachers who had an understanding of computer usage and were trying to implement it into their curriculum did not have sufficient software or enough time to develop their own computer programs. Computers at Crestwood Elementary School were being improperly used.

The administration was aware of the problem and attempted to solve it. A classroom teacher with a computer background agreed to implement a brief explanation of the computers that were placed in the school. Teachers were enthusiastic in learning about the computers and most were willing to participate. No computer curriculum, software, or extra time was provided for the teacher who agreed to implement an explanation of computers, or for the teachers who agreed to participate. Because the sessions were held in the library, where only two computers are housed, the teachers did not have any hands-on experience. No formal evaluation was performed, but there was a consensus among the teachers that they still did not feel confident in using the computer. Because the teachers did not experience hands-on practice and did not view software that would identify potentials of the computer in the classroom, the problem was not solved.

The county provided a 20-hour computer in-service training program for teachers in Hillsborough County. Participants were selected on a "first come, first serve" basis because there was a limit on the number of members in each session. The training was held after school hours and no stipend or incentive of any kind was provided for the time the teachers were taking. Many of the primary teachers at Crestwood had expressed a desire to attend this computer training in-service, but only the writer has had the opportunity to go.

A one-day workshop was provided to classroom teachers on the use of the word processor. This workshop was also limited in the number of participants and required that the members already had a basic knowledge of computers. This again, left out many interested teachers.

If teachers had a better understanding of the potential of computers in education and were trained in computer usage, computers at Crestwood Elementary School would be properly used.

Problem Documentation

The writer informally discussed the problem of the improper use of computers throughout the 1983-84 school year with the principal, curriculum specialist, curriculum supervisor, parents, and other teachers on the staff. They all expressed a great concern for the problem and felt that an attempt to solve the problem should be made, but no solutions were attempted during that school year.

A bulletin was sent home during the first week of the 1984-85 school year that, among other things, asked parents to list any concerns or questions for the upcoming school year. Over half of all respondents listed concerns or questions on the use of computers as a part of the child's curriculum. Some of the responses were:

Are there computers in the schools?

Will my child learn to use a computer?

Children should be introduced to computers.

My son used computers in New York. Why hasn't he used them here?

Why isn't Suzy allowed to use the computer and other children are?

Bobby says that all he does is play games on the computer.

You should let the kids use the computers more.

Where are the computers that the school is supposed to have?

I'm glad to know that my child is using a computer.

Special classes for children to learn computers should be made for the above average student.

Kids play enough video games away from school. I hope they're not going to do this in school also.

The principal presented the concerns of the parents on computer usage to the teachers during a faculty meeting and asked for suggestions to improve computer education in the school. During this meeting primary teachers voiced their concerns and anxieties about teaching the children to use the computers. They expressed a need for training in computer usage and appropriate software for all grade levels. Some of their comments were:

I don't feel competent using computers.

Computers scare me!

How can I teach something that I know nothing about?

They're too complicated for me.

I read the manual but it didn't help.

Where's the software for these computers?

We should have an entire day just to write programs.

When do we have time to write programs for the children?

My kids are too young to use the computer.

I don't have time for that.

The writer met again informally with the principal to discuss implementing a solution to this problem that existed within the school. The writer and principal felt that if these primary teachers could gain an understanding of how computers are being effectively used in early childhood education and the importance of computer education, they would become more interested and enthusiastic about computer education for young children. The writer agreed to plan and implement a solution that would involve all of the faculty working with children in grades kindergarten through third at Crestwood.

The writer gave a seven-question questionnaire to all of the 21 primary staff members at Crestwood School (see Appendix E). The results indicated the following: (a) The members were not properly trained to use the computer as an educational tool; (b) There were not enough computer programs available in the school; (c) The staff was unaware of what computer programs are available in the school; (d) The computers were not being properly used in the school; (e) The entire primary staff did not know how to properly use the computers available in the school; (f) Teachers would benefit from computer training; and (g) Most of the primary staff would attend workshops in computer training (see Appendix F).

Eccles, Kriesler, and Sproul (1983) felt that for many children, video arcades provide the first taste of the computer and, serve as a doorway to a culture that is transforming the fabric of work. According to industry estimates, computers will be the primary tools in 25% of all jobs in the near future. Because of this, computer literacy is becoming an essential skill. Exposing children early to computers will make them more likely to develop "computer efficiency", learn procedural thinking and programming, and develop the sense of mastery that will encourage them to tackle more complex computer tasks. The style of computing can be threatening, but those children who do acquire some proficiency usually advance rapidly. Eccles et al report that a study of children who had computers in their homes found that 67% of the children over 12, and 88% under 12, used them to play games, along

with other activities. Computer etiquette is generally not taught; on the contrary, children are exposed to models in the arcades who teach them to break rules. Because computers are spreading rapidly into homes and schools, the use of computers should be open to all children if they are to have an equal opportunity in the computer future.

Wagemaker (1983) pointed out that predictions are that classrooms of the future are likely to have computers as desks and blackboards. Computers will be used in class as a matter of course. Surveys showed a dramatic increase in computers used in the schools. Wagemaker reported that in 1981 about half of the United States' school districts owned computers. This number has increased nearly 60% over the last year. Home computer sales are also on the increase. Training in computer use, information about the structure and capabilities of computers, and hands-on practice to master necessary skills in computer usage has lagged behind computer development. Computers can present information, test a child's comprehension of a lesson, provide experience in analytical thinking and problem-solving, and give feedback. The computer can be a valuable tool to the teacher enabling her to use her time in other ways. Much of the software being used in the classroom can be grouped into three categories: drill and practice, tutorial, and simulation. Drill and practice allows a child to improve skills already learned. Tutorial presents information in a sequence. Simulation describes an event and asks the child to choose a role and how the action will take place. There is not enough software available for each subject at all grade levels, but more new software is being developed. The computer allows children to progress at their individual

rate. The technology is being developed that will allow people to use the computer by voice. This will provide computer usage for non-readers including adults and children. In whatever computers are used in the classroom, the goal is to help children learn more effectively. Studies indicated that students showed improvement in math when using computer assisted instruction.

Teachers most commonly reported that children were enthusiastic about working with computers. It appeared affirmative that children learned by working with computers. In order for computers to be effectively used in the classroom, training for the teachers must be provided so that they can develop computer literacy (an understanding of how computers work and how they can be used). Teaching teachers to operate computers and providing opportunities to practice using the computer is a basic need. Training and experience helped teachers feel more comfortable and confident about computer use. Teachers can learn about computers through workshops, asking others, computer classes, visiting computer stores, and reading computer material.

Cetron and O'Toole (1982) brought to our attention that robots of the future can only do as much as the computer programmer programs into them. Computer programmers will be more in demand within the next 20 years than any other profession. All undergraduates at Harvard University must be able to write at least a single, two-step computer program in order to graduate. The invention of the microprocessing chip has inspired many new electronic products, and has transferred many old products into new ones. Estimates have suggested that the demand for computer programmers outnumbers the supply by anywhere from 50,000 to

100,000. Futurists see this as a conservative estimate and that by the year 2000 there will be nearly one million jobs for computer programmers in the United States with salaries beginning at $13,000 yearly.

Causative Analysis

The causes for the improper use of computers were: (a) teachers were not aware of the uses of the computer as an educational tool; (b) teacher training in the use of computers had not yet been provided for in the school;(c) proper software was not available for primary children; and (d) teachers were unaware of the software available in the school.

Because computer training had not been provided for the teachers, they were unaware of the potential a computer can have in an educational setting. If teachers could view the educational software available and had easy access to it, they would have a better understanding of the potential of computers in education.

Townsend and Hale (1981) discovered that many educational faculties were reluctant to use technology for instruction. They found that the reasons for this reluctance were due to a lack of knowledge, it was viewed as an inappropriate discipline, there was a fear of being replaced by a machine, and being threatened by students who were more knowledgeable than the teacher. They found that the opposition to computers in the educational setting could be overcome by making teachers aware of the potential and importance of their existence and providing the teachers with knowledge about the computer.

The Related Literature

Stewart (1981) summarized a debate by The National Educational Computer Conference, held in Texas, that offered a representation of

conflicting opinions of computer usage in the school setting. More than 1,000 teachers, administrators, educational suppliers, and computer representatives were involved. The conference activities consisted of lectures, discussions, tutorials, and demonstrations.

The founder of Computer Literacy, Incorporated, Arthyr Luehrmann, divided the computer into three categories: learning from, learning with, and learning about. The educational approaches known as computer assisted instruction (CAI) and computer managed instruction (CMI) are included in learning from. In CAI, the computer presents both the subject and the tests; in CMI, the computer administers only the test and the use of external materials. Problem solving and carrying out simulations are included in learning with. Learning about is also known as computer literacy. Its goals are to teach programming and programming skills, new ways of thinking, planning skills, and debugging strategies. No single answer to how computers should be used in the classroom was agreed upon; but many opinions were expressed, developed, and changed on the question. At least, this was a good start in implementing computers into the schools.

Lunetta (1975) described materials that have been used to present to teachers in support of computers in the classroom. Because computers are being placed in schools all around the county, all teachers should have an opportunity to understand their usage. First, Lunetta expressed the following four reasons why teachers need to have an understanding of computers:

(1) to make knowledgeable recommendations concerning computer use;

(2) to modify teaching styles to appropriately use computer modules that effectively support classromm learning;

(3) to actively participate in designing and producing effective computer software that will supplement the curriculum;

(4) to help students develop skills for effective utilization of technology in learning and in their lives.

Then Lunetta explained important uses of the computer in the classroom. He discussed computers being used as an object of instruction, first-hand experience with computers, individualizing education, instructional management, tutorial, drills and practice, and a problem-solving tool.

Four modules were developed to teach skills in implementing computers in the school setting. The modules consisted of discussions on the problems of implementing computers in the school environment and some suggestions in dealing with the problems. The computer modules were used at the University of Iowa's teacher education program for three semesters. A pre and post-assessment of the students' attitudes towards computers in education revealed that users enjoyed their experiences, their perceptions of computers in education improved, and there was an improvement in attitude towards computers in the educational setting.

Lunetta found that a by-product of computer education was that students are likely to develop a perception of the potentials and limitations of computer usage that will be of value in their future.

Weible et al (1983) described how seven small schools in mid-Missouri implemented computers in their schools. First a meeting of the superintendents of the seven schools and representatives of the University of Missouri Department of Elementary and Secondary Education met to discuss the problems and potentials of microcomputers in the schools. Providing in-service training to the staff was the top priority of all the superintendents. All but one of the seven schools sold its proposal to the seven respective boards, and implementation began. One district assumed the responsibilities of all finances and record keeping. The superintendents agreed to organize a consortium, to jointly fund it, and to begin as soon as possible. A suitable full-time computer technologist was then hired and the training began.

The university acted as a resource/consultant providing the in-service training and assuming the responsibilities of documenting and evaluating the program. McREL, a federal agency, provided partial funding and also served as a resource/consultant. The State Department of Education assumed the responsibilities of communication among members determining meeting times. It also ensured that the consortium worked within the guidelines and regulations established by the state and the members.

A full-time consultant was hired to work with each school for an equal amount of time. The consultant's efforts were to: (a) upgrade faculty and administration computer literacy; (b) facilitate the development of computer assisted instruction; (c) explore the

use of microcomputers for instructional management; and (d) develop an awareness of available networking. The consultant traveled to the schools to provide in-service training in each of the four areas.

Formal evaluation of all data that was used has not been completed, but informal discussions with participants led the consortium to formulate the following rules:

1. A consortium may be organized for any purpose where there is an advantage from cooperation.

2. The best size of a consortium is three to eight members.

3. Best work results in schools that are located close together.

4. Consortia work best if the members are similar in number.

5. A consortium seems to work better when the members remain informed.

6. A consortium works best if the superintendents take an active role.

7. A consortium involving money is better organized if one member agrees to be responsible for accounting while all members contribute to funding.

8. Frequent meetings keep a consortium on track and produce new ideas.

9. Consortiums are more effective if they have an ongoing relationship with outside sources.

A program/user interaction program was explained by Coward and Squires (1981). This interaction allowed new learning techniques to

occur. These learning techniqies includ stimulation of experience; using and changing models to explain ideas and observations; and the testing of person hypothesis using information retrieval techniques. A computer used in this way enabled educational processes to take place. It was a means of supporting and extending learning activities and not an object of study itself.

Hertfordshire Education Authority produced a video program that was used as part of this program/user interaction training in-service. This program was produced in order to try to resolve the following problems that they felt were apparent:

1. the need to develop an awareness within teachers of the role educational technology played in the classroom.

2. to break down the subject-oriented perceptions that some teachers used to evaluate educational technology.

3. to coordinate all contributions concerned with educational technology in the county.

The program was designed to show the use of a computer assisted learning (CAL) program. One camera was used to record the output of the computer while two other cameras and two microcomputers recorded a classroom observation of CAL being implemented. The program emphasized the authority's theoretical approach in the potential of educational technology. The program showed teachers previewing a computer program, coordinating the program with other materials, invloving the children in the use of the resources, and effecting communication between the class and teacher. The video program was edited in order to

emphasize the potential of the computer in the classroom, preparation for computer education, integrating computers into lessons, and evaluating computer usage. The authority had identified these procedures as important in educational technology.

Based on two years of experience in teaching teachers computer usage, Dr. Anderson (1981) developed a six-week mini-course that provided the participants with practical and realistic information about computers. The mini-course consisted of 12 two-hour sessions. Importance was placed on hands-on experience during the sessions and access to a computer during the teachers' free periods, lunch periods, and after-school time.

Session one was an introduction to the course and hands-on experience. A videotape was shown that provided testimonials expressing positive feelings about microcomputers from teachers, parents, and students. The hands-on experience involved the teachers in running short and simple programs in order to build confidence and an eagerness to learn more. Session two involved computer competencies, history, and components. The relevance of computers to teachers and a brief history using a film was discussed. A list of vocabulary words was provided for the teachers in order to help them form their own glossary. Sessions three and four focused on basic programming. Transparency masters were used to teach basic commands, simple statements, and connecting the microcomputer to a monitor. Teachers were

then given the opportunity to write and run their own simple programs in order to receive immediate feedback. Session five dealt with graphics. Teachers typed and ran programs that caused the lights to blink, they drew lines, and developed animation. Teachers looked at the educational uses of the computer and the systematic design of computer programs during session six. The instructional strategies of drill and practice, simulation, games, tutoring, problem-solving, testing, and management were introduced by displaying examples of software. Since teachers did not have time to create many of their own educational programs, sessions seven and eight developed the skill of selecting the appropriate software for their needs.

A set of evaluation criteria was developed and teachers used this criteria to evaluate a large collection of software. Computer store representatives were invited to present different computer hardware and software. Teachers were given an evaluation sheet to use in order to evaluate their products. During session nine teachers were given the opportunity to preview resources for teaching computer literacy. These resources included a list of organizations, books, magazines, films, slide programs, videotapes, and catalogs. Funding sources and proposal writing were focused on during session ten. Information about local, state, and federal sources of money was provided. During session eleven, teachers who were already using computers in the classroom held panel discussions on implementing strategies. These sessions brought a

reality to the teachers by identifying the good and bad aspects of integrating computers into the classroom. The future of computer technology was discussed in session twelve in order to identify how computers will effect our lives. Important ways computers are now being used and ways that they will be used in the future were also presented.

Scholastic, Inc. (1982) found that many teachers were asking the question, "What can I do with a computer now that there's one in my school?" Teachers could either teach with a computer or teach about it. Teaching with a computer provided students with instruction via the computer and computer-managed record keeping. It relied on software that most commonly came in three instructional forms: Drill and Practice, Tutorial, and Simulation. Drill and Practice reinforced basic skills and was the most common. Most Drill and Practice provided feedback ranging from a simple correct to an elaborate pictorial reward. Little or no prior knowledge was needed with Tutorial programs. Their feedback usually provided an explanation for the correct answer. Computer Simulations could model realistic or fantastic situations. Computer-managed instruction could work as a combination lesson plan and grade book. It gave the student instruction and then recorded each student's set of responses.

Teaching about a computer focused on skills needed to understand and operate computers. Usually, these skills fell under Computer Literacy, Computer Science of Programming, or Word Processing. Computer Literacy consists of three objectives. They are

(a) understanding what a computer is and what it can and cannot do; (b) understand how a computer works; and (c) understanding the role of computers in society. Computer Science/Programming includes a higher level of technical training as well as writing and developing computer programs. A word processor allows the computer to be used as all writing materials in one. It can print, erase, edit and store. It has all of the tools a writer needs in order to make writing an easier task.

Winner (1983) implemented a computer training program. The goals were to demonstrate an increase in faculty awareness of possible computer classroom interaction, to extend this awareness to classroom usage, and to enhance the implementation of classroom computing. Most computer training omits education, specific instruction, and training designed specifically for teachers. Elementary educators have had to use their own devices to explore and implement the computer in the classroom situation.

First, computer awareness and interest was developed by demonstrations of computer programs during faculty meetings and in the classrooms. An informal needs assessment identified a need for computing training. A year-long bi-weekly computer training program was open to all teachers. Since the instructor/program designer was a fellow teacher, she could structure the program by the needs of the staff. The designer found that it was important to provide two weeks between sessions in order for the participants to have ample time for exploring and experimenting with the material

presented at each meeting. The theme of the program was "wise use" of the computer in the classroom.

Formal evaluations suggested that both teachers and students perceive computer education to be as effective as traditional instruction. The program brought success and interest in computer education. The administrators of the school have embarked on fund raisers to raise enough money to provide a computer for every two children in the school.

A Computer Experience Microvan Program developed at New Mexico State University was explained by Dr. Amodeo (1982). This program is an example of the impact of computer technology in education. The program was established by computer planning committees advised by a university advisory group. The committees developed objectives and plans for implementing the program. The program took microcomputers into classrooms in rural areas throughout the state. It introduced the students and teachers to microcomputer technology and its potential for educational programs.

The Computer Experience Microvan Program was provided for public schools as well as off-campus college courses. The program was enthusiastically supported by the Space Center, the International Space Hall of Fame Foundation, New Mexico State University, and Texas Instruments Corporation. The primary objective of this program encompassed computer awareness, computer literacy, and hands-on machine time. Specific levels were designed to meet the needs and guidelines of each group encountered. The staff, which consisted

of professional educators, not computer scientists, gave both teachers and students instruction on computer technology.

Formative evaluation was implemented throughout the program that included formal evaluations by teachers, administrators, and students; anecdotal reports and logs by the traveling staff; and quantitative data collection and analysis. The evaluation proved not only that all objectives of the program were mastered, but that the microvan program was strengthening the university's position in the area by improving public relations with public schools, advertisement for the college, expanding college courses into rural areas, and recruiting potential students to the college.

Computer Assisted Renewal Education (CARE) was evaluated and explained by Dr. Dupuis (1984). In the State of Pennsylvania, a large percentage of students and teachers live in rural areas. The administration at Penn State University found it difficult to employ quality part-time instructors in the rural area because of a ruling by the Pennsylvania Department of Education. This ruling required 24 credit hours beyond the bachelor's degree and three years teaching experience for permanent certification. A school district was allowed to provide in-service training for its own needs. This training fulfilled the 24 credit hours needed for permanent certification. CARE is a program developed to provide high-quality, in-service offerings to the teachers in rural areas. First, computers were programmed with the in-service lessons. Then the computers were placed in a mobile van that was moved from site to site throughout the state.

CARE is federally funded and has been in operation since 1969. Computers are programmed to provide instruction and to respond immediately to the teacher's input. The CARE program involves flexibility in scheduling and self-pacing throughout the program. Individualization is provided through a pretest to determine if the teacher needs output and practice or if she is ready to proceed to something new. The teacher receives information from a Cathode Ray Tube to which she responds.

Formal attitude of teachers who participated in this CARE program were systematically conducted. The evaluation revealed that their attitudes toward the course and procedure were positive. The Department of Education at Penn State University is convinced that the mobile in-services' causes are effective in reaching rural teachers for quality education.

Worthington School (1983) formed a Computer Planning Team to develop an overall plan for computer usage in the instructional setting. The task force consisted of teachers and administrators in the Worthington School District. The Computer Planning Team first identified four different ways in which the computer could benefit students and teachers. They were: computer awareness, programming, courseware, and classroom management.

Computer Awareness developed the student's appreciation and understanding of computer advances. Computer programming for children in kindergarten through eighth grade developed the programming skills necessary for problem solving. For students in high school, it involved more in-depth programming skills through elective

courses. Courseware instruction helped familiarize the teachers with different software such as tutorials, simulations, and drill and practice. It also developed the skill of evaluating software programs and determining if they were appropriate for their needs. Classroom management was the use of computer programs to help teachers develop grades, tests, and maintain individual student records.

Seven pilot teachers were selected to attend a 14-hour in-service training program in LOGO (means "word" in Greek language). The 14 hours of training developed the following competencies in LOGO: (a) LOGO language structure; (b) turtle graphic commands; (c) use of variables and recursion; (d) developing and using procedures; (e) screen modes (text, edit, and graphics); (f) use of LOGO File System; (g) cursory introduction to word and list manipulation; and (h) overview of Papert's LOGO philosophy. For two months, the teachers met on a biweekly basis.

The results of the in-service revealed that teachers became enthusiastic and excited about using computers in the classroom. The teachers reported that out of the 200 children who were exposed to the computers, only five cases were cited of children having no interest in computer usage. The time children spent on the computer increased from an average of 0-15 minutes to one hour per week. All teachers reported increased parent participation, involvement, and an interest in computer usage at the school. All teachers indicated that their experience of using computers with the children was a positive one.

Worthington's Computer Planning Team also provided in-service to a team consisting of teachers, principals, and media specialists. These members were to: (a) assist other teachers in becoming aware of the use of the computer as an instructional tool; (b) plan and implement computer in-service programs in their schools; (c) assist teachers in evaluating instructional software; (d) act as a communicator between the Computer Planning Team and their school; (e) assist the Computer Planning Team in refining in-service programs and their future needs; and (f) assist in curriculum development for integrating computers into the instructional program.

Questionnaires were developed and used as a pre and a posttest to evaluate the in-service sessions. The results indicated that the participants gained a greater understanding of the potential use of computers to enhance classroom instruction. Some recommendations for improving the in-service were more sessions and fewer participants in each session.

After this team implemented the skills they had mastered from the training, the Computer Planning Team did a follow-up to find out the results. Some of the conclusions reached by the Computer Planning Team were: (a) many teachers who had never used computers in the classroom were now using them; (b) teachers were able to identify areas of curriculum in which there was a need for software; (c) participants felt more confident in using computers; (d) participants accepted the importance of computers as a teaching tool; and (e) participants were willing to extend their participation in computer training.

A Computer Assisted Instructional (CAI) program was devised by the Montgomery County Public Schools (1974). The CAI was developed by an educational technologist and consisted of 40 modular instructional packages from grades one through junior high. Since the programs first three years were federally funded, it was extensively documented and evaluated. The first three years of the program focused on training staff, developing curriculum, pilot testing the materials, and validation studies. During the training session, many programs were written by teachem and used as part of the child's computer education curriculum. Now the training is supported by the Montgomery County Public School Board and outside grants.

The design team wrote, implemented, and evaluated computer programs in levels kindergarten through secondary. They designed programs in the areas of math and computer awareness for the elementary level. They designed programs in math, English, French, social studies, industrial arts and junior high orientation for secondary levels.

The design team for elementary consisted of elementary teachers and was directed by a specialist in curriculum design. The team was responsible for developing CAI programs in levels first through eighth. They developed a module on the Operation of Whole Numbers. It was divided into sections on addition, subtraction, multiplication, and division. Each section had a pretest, drills, and review test. A posttest was used in all four sections in order to complete

the module. A pretest was given to determine what level the student was in; levels ranged from first through eighth.

A program in computer awareness especially designed for kindergarten and first grade consisted of two activities. One activity allowed the child to participate in computer program experience and the other had the children visit a computer facility.

Saif and Mackall (1984) documented how the Kendall Demonstration Elementary School (KDES) organized computer usage after a needs assessment identified the need for computers in: (a) administrative functions such as attendance, scheduling, and data analysis; (b) educational functions, such as maintaining a student database monitoring student achievement, and individualized educational plans; and (c) special support functions such as referrals. Using these areas of need, the school sent bid specifications to hardware and software developers. Hardware was the last item considered since finding appropriate software was what would meet the needs. The software that was chosen by KDES allowed the school to organize its curriculum into three to six levels.

They then took the curriculum they were using to school and loaded it into a computer so that it could be saved. Once the curriculum was loaded into the computer, it was proofed, corrected,and two copies were made. One copy was used as a working copy and the other was achange copy that could be easily revised and manipulated. Once both curriculum content and student data were entered into the computer, teachers were trained how to use the computer not only in

instruction, but also how to enter and modify student data.

After implementing the computers, through evaluation, KDES developed the following reccmmendations for making decisions on computerization: (a) Assess the needs before buying. Are the needs great enough to warrant the cost? (b) Is there any software that can solve the problems? (c) Develop a plan for implementing computers based on the needs of software available. and (d) Organize data in pencil and paper before entering it into the computer.

Archer (1981) described materials used in an in-service training program on the use of microcomputers for special education in grades kindergarten through twelfth. He explained that estimates of 600,000 computers units will be incorporated into education in the near future, spending over $200 million for software and $400 million in hardware. The program first introduced the five major microcomputers used by educators and described their functions.

Characteristics of good software were thoroughly examined. They included: explanation of self-paced instruction, use of learning modes, learner-based instruction, teacher assignable, and teacher management. No knowledge of the program was necessary. The teacher identified the possibilities of computers being used in the classroom, instructional needs, and revised educational software with these needs in mind. The participants were given a list of resource people in the area and how they could be contacted.

The objectives of the module were:

1. Name three applications of computers in the classroom or

instructional setting.

2. Name two types of memory used by computers.

3. Name three resources on microcomputer software in the state and at least one in the area.

4. Name three major brands of computers and their features.

5. Be able to make an informed decision regarding applying or purchasing a computer for their classroom needs.

Poirot and Heidt (1982) provided their readers with a valuable questionnaire to help in planning for the implementation of computers in schools. Part I provided background data and the respondents' levels of computer expertise. Part II identified respondents' attitudes towards computers in education. Part III focused on the educational computing applications that the respondents felt were important.

The first step in using the questionnaire was to distribute it among all faculty members. Once the responses were tabulated, the results were used to develop the plan of implementation. The results of part I helped to assess the faculty's training needs and faculty members who could offer help. The results of part II gave a good idea of the level of acceptance and resistance to computers the faculty had. The results of part III indicated how the faculty felt the computers should be applied in the school.

In summary, the literature indicated that computer usage has been a concern of many schools. Much has been done to emphasize the proper use of computers in education. There were several good

approaches illustrating various ways others have attacked the proper use of computers in the educational setting. These suggestions provided many ideas that were helpful in resolving the improper use of computers in a school.

CHAPTER III

ANTICIPATED OUTCOMES AND EVALUATION INSTRUMENTS

Statement of General Goals

The general goals of this practicum were to develop, implement, and evaluate a plan to develop the proper use of computers in a selected school. It was anticipated that the implementation of this practicum would increase the participants' knowledge in computer usage, identify educational computer programs, and encourage more time for computer education in the classroom.

Behavioral Expectations

After implementation had been completed, the participants of this practicum were expected to demonstrate the following objectives: (a) Spend 50% more time on computer education; (b) Identify at least five educational computer programs for their respective grade level; (c) Demonstrate at least a 20% increase in their knowledge of computers and computer functions in the educational setting; and (d) Demonstrate how to properly use computers.

Evaluation Instruments

A form was provided for each participant to list the time spent on computer education before and during this practicum solution (see Appendix G). The writer then compared these times to determine if there had been a 50% increase in the time spent on computer education.

The writer developed a test to measure the participants' ability to identify educational programs and their knowledge of computers (see Appendix H). The test was administered as a pre/post-test to determine the participants' increase in computer knowledge. It consisted of 50 questions on basic computer knowledge. Each question was worth two points and the participants were expected to score 80% or above in order to receive a passing grade with in-service points.

The proper use of computers was measured by an observation checklist that was also developed by the writer (see Appendix I). The checklist consisted of 10 items on the proper use of computers and software. The writer administered the checklist and observed the participants while they used the computers; she checked each item as it was demonstrated by the participant. Each item was worth 10 points. The participants were expected to score 80% or above in order to receive a passing grade on the checklist and in-service points.

Any participant who did not receive at least 80% on either of the two tests was required to remediate and retake the test in order to receive in-service points. The participants were required to have a score of 80% or above on both tests to qualify for in-service points used for teacher recertification in Hillsborough County.

The writer presented the results of the evaluation by showing the time each participant spent weekly on computer education before

the implementation of this practicum and the time spent on computer education during the implementation period of this practicum. These times were compared to determine how much more time was spent on computer education during the time this practicum was being implemented.

Also compared were the participants' pre and posttest scores on the test, the difference between their pre and posttest scores, their success related to identifying at least five educational computer programs, and scores on the observation checklist. The participants' scores on the pre and posttest and the observation checklist were compared to determine if the following objectives were met: (a) identification of at least five educational programs; (b) 20% increase in their knowledge of computers; and (c) demonstration of proper computer usage.

CHAPTER IV

SOLUTION STRATEGY

Discussion and Evaluation of Solutions

By placing computers in the schools, Hillsborough County was requesting that the classroom teacher instruct the children in computer usage. Teachers were being advised by administrators and the media to place more emphasis on computer education. Because no computer training had been provided for the teachers, the computers were being used improperly.

Squires and Coward (1981) developed a video program designed to show the proper use of computers in the classroom. The video proved to be successful in showing teachers the potential of the computer in the classroom setting.

Dupuis (1974) discussed a federally funded program that provided in-service training for teachers. Computers were programmed with the training session desired and were then driven to different schools. Evaluation revealed this procedure to be a success.

Weible (1983) described how seven small schools implemented computers. Superintendents first agreed that the top priority of all schools involved was to provide in-service training. A full-time consultant was hired to travel to each of the schools and provide computer training. Funding for this program was provided by the superintendents of the schools and McREL, a federal agency.

Based on Anderson's (1981) two years of experience in teaching computer education to teachers, she viewed hands-on experience as

the most important aspect of computer education. Anderson developed a minicourse on computer education that has been evaluated as a tremendous success.

Winner (1983) found it a great benefit to have the instructor/program designer of a "wise-use" computer course be a fellow teacher. Because Winner was a fellow teacher, she was aware of the faculty's needs and structured her program around this. Formal evaluations suggested that both teachers and students perceived computers as being effective in the educational setting.

Worthington School(1983) found it important to have training sessions on a biweekly basis. Meeting every two weeks allowed the participants to practice and implement the skills they learned. The results of this in-service revealed that teachers became enthusiastic about using computers, spent more time on computer education, and felt positive about using computers with children.

Some other solutions that were considered by the writer included hiring a computer consultant, recruiting volunteers who would conduct free computer classes, charging each student in the school a computer fee that would be used to hire a computer teacher, and having universities require computer classes for all education majors.

The writer did not have the proper authority to charge students a computer fee or require universities to provide mandatory computer courses for all education majors. At the time, the writer did not have any available funds for extra personnel or the authority to hire them. Because volunteers had been difficult to obtain in the

past, the writer did not select recruiting volunteers as an appropriate solution.

The writer did not select a video as a possible solution for two reasons: She did not have the essential video equipment, training, or experience needed to produce this type of program; and she saw computer programmed training sessions as a possible solution for the future but, at the time, she had no available funds.

The writer concluded that the top priority of implementing computers into a school should be training in their use. The writer also agreed with Anderson on the importance of having hands-on experience during computer training classes. The writer understood the benefit of having the instructor/program designer of a computer in-service be a fellow teacher. She also understood that it was important to have sessions meet biweekly, in order to allow "practice time" for the participants.

Providing training in the use of computers, presenting software that is available for educational usage, preparing an inventory for all available computer materials, and having a resource person available in the school were the best solutions to this practicum problem.

Description of Selected Solution

The writer met informally with the principal to discuss implementing computer training for the primary teachers within the school. The principal formally acknowledged the problem and requested computer training via a letter to the writer (see Appendix J). The

writer agreed to plan and implement a computer training program for all faculty working with children in grades kindergarten through third at Crestwood School.

The writer first used her literature review to develop the format for this practicum solution. Through research she was able to identify solutions that had proven successful for others with the same problem. She then selected the solutions that would also be appropriate to implement in her school. The writer used the following four items as a format for developing this practicum solution: (a) in-service training would be provided; (b) the sessions would be on a biweekly basis; (c) the instructor/program designer would be a fellow teacher; and (d) hands-on experience would be emphasized. Because the writer had no available funds, she appointed herself as the instructor/program designer.

The writer reviewed materials she had compiled from computer training classes which she had attended and met with fellow teachers, the curriculum specialist, the curriculum supervisor, and the supervisor for computer education. She met with these people on an individual basis to gather their recommendations for developing the training program. The curriculum supervisor presented the guidelines for in-service training courses in Hillsborough County (see Appendix K).

The resources used to develop this computer training in-service included materials from training classes that the writer attended; a literature review; research into successful solutions to similar

problems; and recommendations from the principal, curriculum specialist, curriculum supervisor, supervisor for computer education, and fellow teachers. The writer compiled the guidelines, suggestions, ideas, and activities that she had gathered from her resources and developed an in-service training program on computer literacy (see Appendix L). An outline of the program (see Appendix M), along with the evaluation instruments that were used in the program were sent to the supervisor of in-service training to be approved for in-service credit.

The program consisted of 20 two-hour, bi-weekly training sessions. The first sessions of the program focused on basic concepts such as parts of a computer, computer history, and basic computer terminology. The program then dealt with computer languages, computer commands, and the use of the disk drive. The program ended with sessions on programming, computer-assisted instruction, computer-managed instruction, evaluating hardware and software, and application programs. All sessions included hands-on experience with a computer, programs to practice with between sessions, and a review of previous sessions. Some of the activities included were: care for hardware and software, functions of the computers, importance of computers to education, basic computer terminology, graphics, and software evaluation. Because the writer is a fellow teacher of the participants, she was able to develop the program around their needs. Being a coworker of the participants allowed the writer to assist the teachers with questions or problems that

they encountered between sessions and act as a resource person for the participants.

Report of Action

The writer provided training in computer usage to primary faculty members at Crestwood School. This practicum involved all 21 primary faculty and 625 students. The writer trained the teachers, and the teachers in turn were prepared to train the students. Because the main objective of this practicum was to train teachers, the writer did not measure the results of the students' progress in computer literacy. The writer views the evaluation of the students' progress as a possible project for the upcoming 1985-86 school year. The writer may consider implementing this project at a later date.

The practicum solution consisted of implementing a computer in-service training program for the duration of 10 months. Because computer training had proven sucessful in introducing computers into schools, it appeared to be the best possible solution for this practicum. Each session began with a review and time for questions from the participants. The instructor then introduced new concepts and distributed handouts for the session. Each session concluded with hands-on time to practice the concepts that were introduced during the session. The instructor/program designer circulated around the room during the hands-on time in order to offer assistance and suggestions when needed.

The writer acted as the instructor/ program designer before and during the training sessions. Between each session, the writer was available as a resource person to assist the participants with any questions or problems they encountered while practicing or implementing the skills they had learned.

The writer found it quite unusual that all participants were in attendance at each class and completed the in-service. The writer attributed the persistent attendance of the participants to two major factors. First, the principal and curriculum specialist expressed a great desire for the participants' cooperation in order to resolve the lack of computer literacy within the school. Second, all participants who completed the in-service received in-service points necessary for the renewal of teacher certification.

A third factor which contributed to the participants' persistent attendance was the convenience of the time and place of the classes. All classes were held at the school and most were held immediately after working hours so that all participants were already at the class site at the appropriate time.

The writer wrote the proposal for this practicum with expected acceptance in November 1984. She then received the necessary permission from the principal of Crestwood (see Appendix J) and the supervisor of in-service education for Hillsborough County. Implementation of this practicum began in November 1984 and continued throughout the school year to August 1985. The writer evaluated

this practicum solution during the last month of implementation, presented the evaluation in Chapter V and submitted this practicum report.

CHAPTER V

RESULTS, CONCLUSIONS AND RECOMMENDATIONS

Results

This practicum was designed to resolve the improper use of computers at a selected elementary school. It was anticipated that by developing and implementing a computer in-service training program that the objectives of this practicum would be accomplished.

The participants were expected to demonstrate four main objectives. The first objective was to spend 50% more time on computer education. When the writer compared the time spent during a 10-week period just prior to implementation to the last 10 weeks of the implementation period, she found that each participant was spending much more than the goal of 50% more time on computer education. The participants spent an average of 1 3/4 hours on computer education during the 10-week period just prior to the implementation of this practicum. During the last 10 weeks of the implementation period, the participants spent an average of 22 3/4 hours on computer education. Table 1 lists the average time the entire group spent on computer education before and after implementation, the individual time each participant spent on computer education before and after the implementation of this pracitcum, whether or not 50% more time was spent on computer education.

Insert Table 1 About Here

TABLE 1

Increase in Time Spent on Computer Education

Participant	Time spent on comp. ed. before implementation	Time spent on comp. ed. after implementation	Difference in times
#1	0 min.	900 min.	+
#2	30 min.	1,200 min.	+
#3	15 min.	900 min.	+
#4	45 min.	1,080 min.	+
#5	30 min.	600 min.	+
#6	45 min.	780 min.	+
#7	600 min.	3,000 min.	+
#8	0 min.	600 min.	+
#9	150 min.	1,200 min.	+
#10	240 min.	3,000 min.	+
#11	30 min.	960 min.	+
#12	210 min.	2,700 min.	+
#13	15 min.	900 min.	+
#14	165 min.	1,200 min.	+
#15	180 min.	2,730 min.	+
#16	150 min.	1,530 min.	+
#17	0 min.	1,230 min.	+
#18	120 min.	1,620 min.	+
#19	60 min.	1,200 min.	+
#20	45 min.	900 min.	+
#21	30 min.	615 min.	+
Average	103 min.	1,374 min.	

* + = 50% more time spent on computer education
  - = less than 50% more time spent on computer education

The participants were also expected to demonstrate a 20% increase in their knowledge of computers, identify at least five educational programs, and demonstrate the proper use of a computer. By comparing each participant's test on a pre/posttest on computer knowledge, the writer found that all participants had at least a 20% increase in their knowledge of computers and computer functions in the educational setting. The writer used questions 12 through 26 of this test on computer knowledge to determine that 100% of the participants could identify at least five educational computer programs for their respective grade levels. Table 2 summarizes all of the test results.

Insert Table 2 About Here

It was stated that participants who did not achieve expected scores to receive a passing grade would be given the opportunity to remediate and retake the tests. However, all participants did receive the expected scores and did not need to remediate or retake the tests.

After the writer completed an observation checklist on each participant, she found that 100% of the participants demonstrated that they could :

a. power up the computer using the proper sequence.

b. power down the computer using the proper sequence.

c. demonstrate the proper care of computers.

TABLE 2

Test Results

Participant	Pre Test Score	Post Test Score	Difference in test scores
#1	50	92	+42%
#2	20	90	+70%
#3	30	98	+68%
#4	40	89	+49%
#5	32	92	+60%
#6	58	94	+44%
#7	78	100	+22%
#8	14	88	+74%
#9	38	90	+52%
#10	46	92	+46%
#11	36	88	+52%
#12	56	94	+38%
#13	34	96	+62%
#14	62	90	+28%
#15	60	90	+30%
#16	68	98	+30%
#17	12	82	+70%
#18	46	92	+46%
#19	58	86	+28%
#20	64	94	+30%
#21	54	100	+46%

*All participants identified at least five educational computer programs and passed all 10 items on the observation checklist.

d. demonstrate proper interfacing techniques.

e. properly use the disk drive.

f. demonstrate the proper care of floppy disks.

g. change the computer cartridge.

h. understand the functions of each key on the computer keyboard.

i. load the word processor with paper.

j. demonstrate the proper use of the word processor.

This observation confirms the success of this practicum.

An unexpected evaluation of this practicum resulted from the participants' comments on their in-service evaluation form (see Appendix N). Written comments at the end of the evaluation form were very positive (see Appendix O) and were categorized into four main areas.

Seven participants commented on the importance of proper training before computers are placed in the school. An exemplary comment was, "All teacher should experience using computers before trying to teach them."

Five participants commented on the desire for additional training in computer usage. An exemplary comment was, "I would like to continue this computer training next year."

Three comments were directed to the computer purchased for the school. An exemplary comment was, "I'm glad these computers aren't being wasted anymore."

Two comments focused on the benefits of the practicum to children. An exemplary comment was, "The children know more about computers because I'm finally teaching it."

Finally, other comments concerned a change in attitudes toward the teaching of computers, the need for this type of in-service, and the fact that the in-service was stimulating.

Conclusions

A summary of the results of this practicum, after its implementation, indicates that all of the objectives have been successfully accomplished beyond the anticipated success. By developing and instructing teachers in computer education, the writer is able to increase the knowledge and time spent on computer education for both the teacher and the student.

The writer has discovered that in addition to accomplishing the preceding objectives, the children and teachers express enthusiasm and excitement for working with computers. They are eager to share this knowledge with other teachers, students, and parents. An increased interest in educational subjects when incorporated with computers is present among children who had previously had no interest at all in that subject. The participants and the writer agree that using computers in the educational setting sparks an interest in school in students who had previously appeared to have had no interest at all.

Although this practicum does not focus on children, it has a positive impact upon them. When the writer reviewed comments written by the participants on their in-service evaluation, the comments indicate that children benefit from the teachers' increased knowledge of computers. Also, there have been many requests for further computer classes during the next school year. Many teachers recommend that computer training

be mandatory for all teachers who have computers in their schools or who anticipate having computers sometime within the school year.

Recommendations

The writer compiled the following recommendations for anyone who anticipates developing a computer training program:

1. Specify a time for teachers to share ideas, materials, and skills that they have developed or have found to be successful on computer education.

2. Bring awareness of the importance of computer education for our young people to parents, teachers, and administrators.

3. Allocate a specific block of time for computer education in the classroom teacher's lesson plans.

4. Mandate that computer education be introduced in the elementary schools.

5. Provide each elementary school with a special teacher to instruct the students in computer education.

Dissemenation

A copy of this practicum along with a copy of the curriculum used in the computer classes will be placed in the library of the participating school. A copy of this practicum report will also be sent to the district supervisor to be reviewed and shared with other interested individuals. A third copy will be placed in the county library for teachers' use.

The participants were eager to share their computer experiences with other interested teachers and parents. The solution strategy was shared with all teachers and interested parents at Crestwood School. A computer sharing time was set up once a month at faculty meetings to discuss and share ideas about computers in the educational setting. All materials that were presented during the in-service training sessions will be made available to any adult upon request. After meeting with the participants of the practicum along with all other teachers and a few interested parents, the writer concluded that Crestwood School will spend more time on computer education throughout the coming school years.

The writer anticipates presenting this practicum report at various in-service training sessions during the next school year.

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APPENDIX A
FACILITIES OF HILLSBOROUGH COUNTY

Grade Level	Number of Schools
Kindergarten through Early Childhood	2
Elementary	89
Middle	1
Junior High	24
Senior High	13
Dept. of Education for Exceptional Students	2
Total	131

APPENDIX B

STUDENT ENROLLMENT OF HILLSBOROUGH COUNTY

Grade Level	Number of Students
Early Childhood and Headstart	1,685
Kindergarten and Elementary	57,256
Junior High	27,908
Senior High	25,265
Total	112,114

APPENDIX C

PUPIL-TEACHER RATIO OF HILLSBOROUGH COUNTY

Grade Level	Pupil-Teacher Ratio
Kindergarten	17:1 & 1 part-time aide
First through Third	18-33:1 & 1 full-time aide 21:1
Fourth through Sixth	29:1
Junior High	31:1
Senior High	34:1

APPENDIX D

FACULTY OF CRESTWOOD

CRESTWOOD FACULTY AND STAFF 1984-85

Principal	Patsy Sissle
Curriculum Specialist and Acting Principal	Ruth Ann Reynolds
Secretary	Sandra Gonzalez
Clerk	Wanda Russell
Guidance	Genie Byrd
Prep Specialist	Patricia Slagle

* * * * * * * * * * * * * * * * * * *

TEACHERS	GRADE	ROOM
Donna Tillman	K	104
Marcia Inman	K	103
Mona Campbell	K	102
Valerie Fernandez	K	101
Donna Otero	1	704
Sharon Anello	1	703
Belinda Costa	1	702
Julia Darby	1	701
Jane Murphy	1	604
Veronica Jackson	1	603
Martha Cerra	2	602
Cindy Menendez	2	601
Carmen Diez	2	504
Carol Collins	2	503
Cindy Bartolotti	2	502
Ernestine Dodson	2	501
Melissa Schumacher	3	404
Rosalie LoCicero	3	403
Delores Delikat	3	402
Aileen Soler	3	401
Muriel Kocher	3	Portable #4
Manuel Duran	3	303
Charlotte Valenti	4	304
Irene Rodriguez	4	302
Stephanie Lewis	4	301
Veronica Taylor	4 & 5	204
Dianna Smith	5	203
Sandra Smith	5	202
Tony Munoz	5	201
Charles Collins	5	Portable #5

Kindergarten Aides	Marie Crescenzi Nancy Garcia Dorothy Roberts Esther Chacon
ECIA (Reading)	Gloria Ferlita Nancy Capaz - Aide Olga Hobgood - In-Class Aide JoAnn Martinez - In-Class Aide
ECLC	Monica Mack Carolyn Chandler - Aide Lillian Johnson
Library	Christine Lopez
Physical Education	Cindy Saladino Richard Fuddy (Tuesday)
Music	Beverly White Clara Jean Peterson (Monday)
EMH	Victoria Gricius Phyllis Pierce (Aide)
SLD	Cindy Martin
EH	Sandra Marra
Speech	Pat Beebe
Psychologist	Brenda Leever
Social Worker	Pat Crosby
Bilingual	Barbara Chrimes Anna Molina Mercy Alfonso

LUNCHROOM STAFF	LUNCHROOM AIDES
Leda Mejias - Manager Martha Alvarez Dorothy Andrade Linda Gilchrist Mary Mullins Ann Wiley Martha Brackett Norma Hall Coralia Rosello	Norma Garcia Emilia Martinez
	CUSTODIANS
	Henry Borges - Head Custodian Rosa Lemes Lydia Lima Maria Hernandez Sergio Hernandez

Kindergarten Aides	Marie Crescenzi Nancy Garcia Dorothy Roberts Esther Chacon
ECIA (Reading)	Gloria Ferlita Nancy Capaz - Aide Olga Hobgood - In-Class Aide JoAnn Martinez - In-Class Aide
ECLC	Monica Mack Carolyn Chandler - Aide Lillian Johnson
Library	Christine Lopez
Physical Education	Cindy Saladino Richard Fuddy (Tuesday)
Music	Beverly White Clara Jean Peterson (Monday)
EMH	Victoria Gricius Phyllis Pierce (Aide)
SLD	Cindy Martin
EH	Sandra Marra
Speech	Pat Beebe
Psychologist	Brenda Leever
Social Worker	Pat Crosby
Bilingual	Barbara Chrimes Anna Molina Mercy Alfonso

LUNCHROOM STAFF

Leda Mejias - Manager
Martha Alvarez
Dorothy Andrade
Linda Gilchrist
Mary Mullins
Ann Wiley
Martha Brackett
Norma Hall
Coralia Rosello

LUNCHROOM AIDES

Norma Garcia
Emilia Martinez

CUSTODIANS

Henry Borges - Head Custodian
Rosa Lemes
Lydia Lima
Maria Hernandez
Sergio Hernandez

APPENDIX E

COMPUTER QUESTIONNAIRE

To: Crestwood Faculty

From: Irene Rodriguez

Teachers, please fill out the following questionnaire and place it in my box. Do not write your name.

1. Have you been properly trained to use the computers as an educational tool?

   _____ Yes _____ No

2. Are there enough computer programs available for use at your grade level?

   _____ Yes _____ No

3. Do you know what computer programs are available for use at your school?

   _____ Yes _____ No

4. Do you feel that the computers at Crestwood are being properly utilized?

   _____ Yes _____ No

5. Do you know how to properly use the computers located at Crestwood?

   _____ Yes _____ No

6. Do you feel that the teachers would benefit from computer training?

   _____ Yes _____ No

7. Would you attend workshops in computer usage, if they were available at Crestwood?

   _____ Yes _____ No

APPENDIX F

RESULTS OF QUESTIONNAIRE

RESULTS OF COMPUTER QUESTIONNAIRE

Question Number	Number of Answers Yes	No
#1	2	29
#2	0	31
#3	8	23
#4	1	30
#5	2	29
#6	0	31
#7	0	31

APPENDIX G

Time Spent on Computer Education

Before In-service	
Week	Time
8-27	
9-3	
9-10	
9-17	
9-24	
10-1	
10-8	
10-15	
10-22	
10-29	
Total	

During In-service	
Week	Time
6-3	
6-10	
6-17	
6-24	
7-1	
7-8	
7-15	
7-22	
7-29	
8-5	
Total	

APPENDIX H

PRE/POST TEST

TEST

1. "Debugging" means to

   a. use line numbers
   b. run the program
   c. correct mistakes in the program
   d. make a flow chart

2. The DOS allows the computer to communicate with

   a. the keyboard
   b. the monitor
   c. other programs
   d. the disk drive

3. The list of programs and files on a disk is stored in the

   a. database
   b. directory
   c. flowchart
   d. header

4. What must you do before using a box of new floppy disks?

   a. format the disk
   b. remove the protective label
   c. copy BASIC onto the disk

5. What is the result of a program loaded from the disk drive into the computer?

   a. an exact copy of the program is on the disk and in the computer
   b. the program is in RAM
   c. the program is controlled from the disk drive

6. Which command shows a program you have typed?

   a. NEW
   b. RUN
   c. LIST
   d. PRINT

7. Which would you use to draw a triangle?

   a. PLOT and DRAWTO
   b. PLOT and PLOT
   c. PLOT and RUN

8. BASIC stands for

   a. Basic advantages selected informational commands
   b. Beginner's Algorithmic System of Instructional Computers
   c. Beginner's all purpose symbolic instruction code

9. Which language was developed for use with children?

   a. COBOL
   b. BASIC
   c. LOGO
   d. FORTRAN

10. Which language was designed for business usage?

    a. COBOL
    b. BASIC
    c. LOGO
    d. FORTRAN

11. The purpose of the cursor indicates that

    a. the power for the computer is on
    b. the Central Processing unit is working
    c. the computer is waiting for you to do something

12. RAM stands for

    a. Random Access Memory
    b. Recent Accurate Memory
    c. Read Always Memory

13. Which is an input devise?

    a. monitor
    b. keyboard
    c. power pack

14. You have typed: 10 PRINT "HOW ARE YOU" and pressed the return key. What is your next step in order for the words HOW ARE YOU to appear on the screen?

    a. press return twice
    b. type the word run and press return
    c. type the word ready

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15. Which of the following is software?

    a. monitor
    b. keyboard
    c. disk drive
    d. program

16. Computer programs are instructions that can make the computer

    a. collect data
    b. analyze information
    c. produce graphics and anamation
    d. all of the above

17. The computer memory which the user cannot change is

    a. ROM
    b. RAM
    c. none of the above

18. Which of the following is a set of instructions that tells a computer what to do?

    a. program
    b. command
    c. BASIC

19. What is the function of the CPU?

    a. to decide on repetitions
    b. to indicate the kind of language used
    c. make logical decisions that control the system

20. Which program is used mostly for storing, retrieving and updating student records?

    a. data base program
    b. tutorial program
    c. word processing program

21-25 List five educational programs

_____

_____

_____

_____

_____

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26. What is the name of an educational program that drills typing skills?

_____

27. Write a program that will count to 50.

_____

_____

_____

_____

28. What will be the output of this program?

```
5 PRINT 8 - 7
10 PRINT 9 - 6
15 END
```

_____

_____

29. Write the output of this program.

```
5 PRINT "YOU ARE"
10 GOTO 25
15 PRINT "WORKER"
20 GOTO 35
25 PRINT "A GOOD"
30 GOTO 15
35 END
```

_____

_____

_____

30. What kind of computer is used to keep records on thousands of customers?

a. mainframe

b. minicomputer

c. microcomputer

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31. What executes a program stored in the memory of a computer?

a. SAVE
b. LOAD
c. RUN

32. Which will put a program on a disk?

a. SAVE "D:_____"
b. SAVE D:"_____"
c. SAVE D: _____

33. Which is an example of computer assisted instruction?

a. programming
b. command
c. simulation

34. Which is an example of hardware?

a. keyboard
b. program
c. printout

35. What is software?

a. a program or series of programs
b. a disk drive
c. any kind of hardware

36. Which of the following programs would be used for computer assisted instruction?

a. database
b. spread sheet
c. drill and practice

37. Which is not one of the four parts of a computer system?

a. input
b. program
c. processing

38. To clear the memory of a stored program you type

a. PRINT
b. RUN
c. NEW

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39. Another name for computer programs is

a. software
b. hardware
c. microcomputer

40-42 Circle three examples of computer assisted instruction

a. command
b. simulation
c. drill and practice
d. basic
e. tutorial

43. How would you get a list of programs on a disk?

a. by typing LIST
b. by typing DOS
c. by typing RUN

44-48 Match the computer languages with their use

a. Pascal	___	used mostly with children
b. Basic	___	used in business
c. Fortran	___	used in science
d. Logo	___	all purpose structured language
e. Cobol	___	all purpose language

49. What processes information?

a. memory
b. central processing unit
c. output

50. What kind of computer would you use to keep checking account data?

a. mainframe
b. minicomputer
c. microcomputer

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ANSWER KEY

1.C
2.D
3.B
4.A
5.A
6.C
7.A
8.C
9.C
10.A
11.C
12.A
13.B
14.B
15.D
16.D
17.A
18.A
19.C
20.A
21.Hickory Dickory
22.Balloon Bandit
23.Gulp Arrow Graphics
24.Counting
25.Video Math Flashcards
26.Typo Attack
27.
```
10 FOR R = 1 TO 50
20 PRINT R
30 NEXT R
40 END
```
28.1
3
29.YOU ARE A GOOD WORKER
30.A
31.C
32.A
33.C
34.A
35.A
36.C
37.B
38.C
39.A
40.B
41.C
42.B
43.A
44.D
45.B
46.C
47.B
48.A
49.B
50.B

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APPENDIX I

OBSERVATION CHECKLIST

1. The student powers up the computer using the proper sequence.

   _____ Pass _____ Fail

2. The student powers down the computer using the proper sequence.

   _____ Pass _____ Fail

3. The student demonstrates the proper care of computers.

   _____ Pass _____ Fail

4. The student demonstrates proper interfacing techniques.

   _____ Pass _____ Fail

5. The student properly uses the disk drive.

   _____ Pass _____ Fail

6. The student demonstrates the proper care of floppy disks.

   _____ Pass _____ Fail

7. The student can change the computer cartridge.

   _____ Pass _____ Fail

8. The student understands the functions of each key on the computer keyboard.

   _____ Pass _____ Fail

9. The student can load the word processor with paper.

   _____ Pass _____ Fail

10. The student demonstrates proper use of the word processor.

    _____ Pass _____ Fail

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APPENDIX J

LETTER FROM PRINCIPAL

SUPERINTENDENT OF SCHOOLS
RAYMOND O. SHELTON

PRINCIPAL
PATSY SISSLE

80

HILLSBOROUGH COUNTY PUBLIC SCHOOLS

CRESTWOOD ELEMENTARY SCHOOL

6110 N. MANHATTAN AVENUE
TAMPA, FLORIDA 33614

November 2, 1984

Dear Miss Rodriguez,

It is my pleasure to congratulate you for initiating a Computer Project at Crestwood School. I am very concerned about our school having no formal training in computers. I feel at this day and age computer training is needed.

I sincerely give you permission to implement a computer training in-service this 1984-85 school year.

I have the greatest confidence in your leadership abilities and I know you will do an outstanding job.

Yours sincerely,

Patsy Sissle
Principal

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APPENDIX K

GUIDELINES FOR IN-SERVICE TRAINING

HILLSBOROUGH COUNTY PUBLIC SCHOOLS

INTER-OFFICE COMMUNICATION DATE August 24, 1984

TO: Instructional Leaders

FROM: John Lizer, Director, Staff Development
Lore Nielsen, Supervisor, Staff Development 685-2540

SUBJECT: Evaluation of Staff Development Activities

Enclosed are the pertinent pages of the State Board rule implementing the Florida statute which mandates evaluation of inservice training programs. We want to specify how the evaluation process will work in Hillsborough County.

All inservice participants must be evaluated to determine that they have increased their knowledge and skills. There are two ways they may demonstrate this increase. First, participants may improve on 80 percent of the specific objectives of a training program. This implies a pre-post assessment which can be related to the specific objectives. A second way participants may show increased knowledge and skills is by achieving at least 80 percent on the post assessment. Which of these routes you follow is an instructional decision based on the content and structure of your training.

Remember that your assessment does not necessarily have to be a written test. Products, checklists, observations may all be appropriate assessment activities but must be evaluated according to objective criteria. Evaluation does not necessarily have to take place only at the end of training; you may choose to assess participants as they complete each training segment. Again, the decision about the form evaluation will take is largely an instructional one.

When you have planned and conducted your training and participant evaluation, you must provide the following documentation:

1. completed Inservice Participation Records for all participants with your signature and indication whether or not the training was completed satisfactorily;

2. a summary of the Participant Rating Scales for all participants;

3. a roster of all participants with hours attended and assessment results in percentages;

4. a copy of the assessment instrument/procedures and a key.

These materials should be submitted to the Staff Development office as soon as possible after the training is completed. If you have some individuals who have not yet met the training requirement but you feel they will do so, keep their Inservice Participation Records until you have determined their final success. It is your responsibility to inform participants whether their performance has been satisfactory. You must maintain the actual assessment instruments on file for one year.

If you have training which continues over a period of time, it is your responsibility to maintain interim records of attendance, partial assessments, etc. If the number of training hours reported for activity is less then ten hours, then the participation is not eligible for inservice credit for certificate renewal. Each submission of points must be supported by assessment results.

For training which occurs outside the district (by private industry, private agencies, at conference, etc.) you do not need to assess participants' increased knowledge. Documentation by the trainers of successful completion or verification of attendance will suffice for award of credit.

We know that implementing these changes is difficult and time consuming. Please contact either of us (272-4892) if we can be of assistance to you.

LN:smc
1-8035

Excerpts from State Board Rules
on Inservice Teacher Education Programs

From Rule 6A-5.71

C. Each staff member who wishes to have a teaching certificate extended as a result of participation in an approved inservice education program shall earn at least one hundred twenty (120) inservice points during the last validity period of the certificate. The requirements for certificate renewal are as follows:

1. At least sixty (60) inservice points shall be earned in the field or fields to which the participant is assigned or certified or will seek assignment or certification.
2. Up to sixty (60) inservice points may be earned out of field in the following areas: administration, guidance, exceptional child education, basic skills, and computer education.
3. Evidence of having satisfactorily completed a component, or otherwise demonstrated competence, in the teaching of appropriate reading skills within the subject or field of certification, or assignment. This requirement is applicable each time a certificate is extended.

5. A component for which inservice points for certification purposes are awarded shall be at least ten (10) hours in length.

The master plan for inservice educational planning shall include . . .

(g) Evaluation criteria for determining:

1. That participants have successfully demonstrated increased competency as indicated by valid measures of performance as required by Section 231.608(1), Florida statutes, on eighty (80) percent of the specific objectives of a component that is used for certification.

2. That participants and consultants have assessed the degree to which specific objectives have been addressed by the component activities.

From Rule 6A-5.61

2. An approved inservice teacher education program shall meet the following standards for continuation of that program:

a. At least ninety percent (90%) of all certificated personnel involved in inservice activities in the program shall demonstrate increased knowledge and skill as indicated by pre-test and post-test, or other appropriate valid measures.

b. The approved evaluation plan for the inservice teacher education program has been implemented, data collected, analyzed and reported to the Department in a manner that ensures supportable interpretation of findings.

(Underlined portions represent changes in the 1984 rule.)

8044

INSERVICE CREDIT

New rules related to staff development and the awarding of inservice credit for renewal of teaching certificates requires that a variety of activities be offered on Professional Study Days. Inservice offerings are designed to provide teachers with up-dated skills and training related to their teaching duties. While some Professional Study Day activities may provide this type of training and award inservice points that may be use to renew a teaching certificate, some activities may not meet the criteria for inservice credit. Teachers who wish to use inservice points for renewal of their teaching certificate should take care to select appropriate offerings.

Three types of inservice offerings are described below:

Workshops of 10 hours or longer. If offered on Professional Study Days, which are only five hours, these workshops require an additional five hours of participation. The additional five hours may be on the next Professional Study Day or at some other time arranged by the workshop director. Appropriate assessment is required in these workshops.

Workshops of less than 10 hours. Workshops of less than 10 hours will award training hours only and can not be used for renewal of a teaching certificate. Appropriate assessment is required in these workshops.

Workshops of five hours or less. Workshops of five hours or less conducted on professional study day are awareness in nature and do not earn inservice points or training hours. No assessment is required and attendance records will be maintained.

APPENDIX L

COMPUTER IN-SERVICE TRAINING PROGRAM

SESSION ONE

1. Course Outline
2. Session One Outline
3. Pretest
4. Rules Around Computer (no food,drink, ect.)
5. Care for Hardware and Software
6. Three Parts of a Computer (keyboard, monitor, disk drive)
7. Power Up / Power Down
8. Hands-on

References

Ahl, David H., "Floppy Disk Handling and Storage." Creative Computing, Dec. 1983.

Rodriguez, Irene, "Power-Up, Power-Down Sequence." 1984.

Rodriguez, Irene, "Computer Literacy Test." 1984.

Skapura, Bob, "A Need to the Novice #1" The Computer Teacher, April 1983.

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SESSION ONE

1. Course Outline
2. Session One Outline
3. Pretest
4. Rules around Computer (no food, drink, etc.)
5. Care for hardware and software
6. Three parts of a computer (keyboard, monitor, disk drive)
7. Power up/Power down
8. Hands on

SESSION TWO

1. Review
2. Session Two Outline
3. Importance of computers to education
4. Three types of computers (mainframe, microcomputer, minicomputer)
5. Computer history
6. Hands on

SESSION THREE

1. Review
2. Session Three Outline
3. Hardware/software
4. Four operations of the computer (accepts information, processes information, stores information, displays information)
5. Computer terminology
6. Hands on

SESSION FOUR

1. Review
2. Session Four Outline
3. Computer words
4. Two memories (RAM, ROM)
5. Modes (immediate, programming)
6. Hands on

SESSION FIVE

1. Review
2. Session Five Outline
3. Basic commands (RUN, LIST, NEW, PRINT)
4. Computer as calculator (plus, minus, multiply, divide)
5. Hands on

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SESSION SIX

1. Review
2. Session Six Outline
3. Basic Commands
4. Central Processing Unit CPU (control unit, arithmetic unit, register)
5. Flowcharts
6. Hands-on

SESSION SEVEN

1. Review
2. Session Seven Outline
3. Programming Languages (BASIC, FORTRAN, COBOL, LOGO, PASCAL)
4. Disk Operating System DOS
5. Hands-on

SESSION EIGHT

1. Review
2. Session Eight Outline
3. Disk Drive
4. Loading and Unloading Software
5. Programming Commands (LET, GOTO, INPUT)
6. Hands-on

SESSION NINE

1. Review
2. Session Nine Outline
3. Formatting a Disk
4. Write DOS for disk
5. Save - Load Procedures

SESSION TEN

1. Review
2. Session 11 Outline
3. Graphics Modes
4. Text Window
5. Plot,Drawto
6. Hands-on

SESSION ELEVEN

1. Review
2. Session Eleven Outline
3. Graphics 3
4. Designs On Graph Paper
5. Color Statements
6. Load Onto Disks
7. Hands-on

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SESSION TWELVE

1. Review
2. Session Twelve Outline
3. Programming (FOR, NEXT)
4. POKE, POS, LOOP
5. Hands-on

SESSION THIRTEEN

1. Review
2. Session Thirteen Outline
3. Computer Assissted Instruction CAI (tutorial, simulations, drill and practice, educational games)
4. Hands-on

SESSION FOURTEEN

1. Review
2. Session Fourteen Outline
3. Computer Managed Instruction CMI (subject area management programs, test generating programs)
4. Hands-on

SESSION FIFTEEN

1. Review
2. Session Fifteen Outline
3. Application Programs (word processing, data base programs, spread sheet programs)
4. Hands-on

SESSION SIXTEEN

1. Review
2. Session Sixteen Outline
3. Evaluating Software
4. Software At Crestwood
5. Hands-on

SESSION SEVENTEEN

1. Review
2. Session Seventeen Outline
3. Programs That Make Sounds
4. Copyrights and Law
5. Plan And Develop A Program For Classroom Use
6. Hands-on

SESSION EIGHTEEN

1. Review
2. Questions
3. Share Ideas Used in the Classrooms
4. Post Test
5. In-service Evaluations

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SESSION NINETEEN & TWENTY

1. Make-up Classes
2. Extra Help Where Needed
3. Retest
4. Hands-on
5. Resources

POWER-UP, POWER-DOWN SEQUENCE

POWER-UP SEQUENCE

1. Plug in and turn on Power Source Spike.
2. Turn on all peripheral devices before turning on the keyboard (CPU).
3. After "Busy" light goes off on disk drive, insert diskette.
4. Turn on CPU.

POWER-DOWN SEQUENCE

1. Take diskette out of disk drive (after busy light is off).
2. Turn off CPU.
3. Turn off all peripheral devices (any sequence).
4. Turn off Power Source Spike at the end of the day.

SESSION TWO

1. Review
2. Session Two Outline
3. Importance of Computers to Education
4. Three Types of Computers (mainframe, microcomputer, minicomputer)
5. Computer History
6. Hands-on

References

Luehrmann, Arthur, "Computer Literacy: What It Is; Why It's Important." Electronic Learning, 1982.

Owens, Buffy, "Center Report: Computers in Use." Working Parents, Sept. 1984.

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COMPUTER HISTORY

Match the following events with the appropriate dates.

Von Neuman invented the stored program concept. _____

ENIAC, the first large-scale computer, was built _____

First evidence of recorded counting _____

Abacus invented _____

Pascal built the first mechanical calculator. _____

First electronic transmission _____

Punched cards were invented for weaving. _____

Typewriter invented _____

Telephone invented _____

Slide rule invented _____

MarkI, the first computer, was built _____

First computer store opened _____

Altair, the first microcomputer, was developed _____

Integrated circuits were developed _____

Transistor was invented to replace the vacum tubes. _____

First fully transistorized computer built _____

Process of photolithography invented _____

Microprocessors developed and both arithmetic and logic could be put on the same chip _____

FORTRAN, the first "automatic programming" language developed _____

8000 B.C.

3000 B.C.

1622 A.D.

1642

1801

1867

1876

1927

1944

1945

1946

1947

1954

1957

1964

1969

1974

1975

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COMPUTER HISTORY ANSWER KEY

Match the following events with the appropriate dates.

Von Neuman invented the stored program concept. 1945

ENIAC, the first large-scale computer, was built. 1946

First evidence of recorded counting. 8000 B.C.

Abacus invented 3000 B.C.

Pascal built the first mechanical calculator. 1642

First electronic transmission 1927

Punched cards were invented for weaving. 1801

Typewriter invented 1867

Telephone invented 1876

Slide rule invented 1622 A.D.

MarkI, the first computer, was built 1944

First computer store opened 1975

Altair, the first microcomputer, was developed 1975

Integrated circuits were developed 1957

Transistor was invented to replace the vacum tubes. 1947

First fully transistorized computer built 1947

Process of photolithography invented 1964

Microprocessors developed and both arithmetic and logic could be put on the same chip 1974

FORTRAN, the first "automatic programming" language developed 1954

8000 B.C.
3000 B.C.
1622 A.D.
1642
1801
1867
1876
1927
1944
1945
1946
1947
1954
1957
1964
1969
1974
1975

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SESSION THREE

1. Review
2. Session Three Outline
3. Hardware / Software
4. Four Operations of the Computer (accepts information, processes information, stores information, displays information)
5. Computer Terminology
6. Hands-on

References

Rodrigues, Irene, "Computer Terminology." 1981.

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BACKUP COPY a duplicate tape, disk, or other storage medium

BIT the smallest unit of digital data that a computer processes

BOOT jargon for turning on the computer and getting it to run

BUG an error in a program

BYTE made of 8 bits. one byte represents one character of the keyboard

CATHODE RAY TUBE (CRT) screen

CENTRAL PROCESSING UNIT (CPR) where information is processed

CHARACTER letter, number, or symbol on the keyboard

COBOL common business oriented language

COMMAND a word in BASIC that tells the computer what to do

COMPUTER accepts, stores, processes, and gives out information

COMPUTER ENGINEER person who desigs computer circuitry

COMPUTER OPERATOR person who runs a computer

COMPUTER TECHNICIAN person who repairs computers

CURSOR the symbol that shows where the next character will appear

DATA input or output of information

DATA BANK a collection of stored information

DATA PROCESSING datathat has been input and used to produce other forms of information

DEBUG to correct errors

DISK used for storing computer programs (floppy disk, hard disk)

DISK DRIVE loads a program from a disk into the computer

DOWNTIME time a computer is out of operation because of a malfunction

FORTRAN language often used in scientific and engineering applications

GRAPHICS designs and patterns that are nontext

HARD COPY printout

HARDWARE computer machinery

INFINITE LOOP repetious instructions in a program

INFORMATION RETRIEVAL a computer function that sorts out wanted data from a lot of information

INPUT data put into the computer

INPUT DEVICE puts data into the computer

INPUT/OUTPUT DEVICE puts data in and out of the computer

INTERFACE to attach pieces of hardware

K stands for kilo or 1000. refers to memory size of computer

MEMORY part of the computer that stores data

MICROCOMPUTER small computer that does one job at a time (home or personal computer)

OUTPUT the results of a processed program

PASCAL computer language used in small and large computers

PASSWORD a code that must be entered into the computer before the user can access a program or data

PRINTER a device that produces printouts

PROGRAM instructions in computer language that tell it what to do

PROGRAMMER person who writes programs

RANDOM ACCESS MEMORY (RAM) computer's temporary memory

SILICON what computer chips are made from

SIMULATION output that imitates real-life experiences

SOFTWARE computer programs

SYNTAX ERROR error in structural rules of a programming language

SYSTEMS ANALYST person who analyzes situations and designs a computerized program to handle it

TERMINAL an I/O device that is connected to a mainframe or microcomputer

TEXT numbers, letters, or symbols on the keyboard

USER a person who uses a computer

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VIDEO SCREEN output device that displays information (CRT or monitor)

WORD PROCESSING to move or change words, sentences, or paragraphs without having to retype them

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SESSION FOUR

1. Review
2. Session Four Outline
3. Computer Words
4. Two Memories (RAM, ROM)
5. Modes (immediate, programming)
6. Hands-on

References

Hillsborough County Public Schools, "Computers in Classrooms." 1983.

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SESSION SIX

1. Review
2. Session Six Outline
3. Basic Commands
4. Central Processing Unit CPU (control unit, arithmetic unit, register
5. Flowcharts
6. Hands-on

References

Hillsborough County Public Schools, "Computers in Classrooms." 1982.

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SESSION SEVEN

1. Review
2. Session Seven Outline
3. Programming Languages (BASIC, FORTRAN, COBOL, LOGO, PASCAL)
4. Disk Operating System DOS
5. Hands-on

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SESSION EIGHT

1. Review
2. Session Eight Outline
3. Disk Drive
4. Loading and Unloading Software
5. Programming Commands (LET, GOTO, INPUT)
6. Hands-on

References

Skapura, Bob, "A need to the Novice #2." The Computing Teacher, May 1983.

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SESSION NINE

1. Review
2. Session Nine Outline
3. Formatting a Disk
4. Write DOS for Disk
5. Save - Load Procedures
6. Hands-on

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SESSION TEN

1. Review
2. Session Ten Outline
3. Graphics Modes
4. Text Window
5. Plot, Drawto
6. Hands-on

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SESSION ELEVEN

1. Review
2. Session Eleven Outline
3. Graphics 3
4. Designs on Graph Paper
5. Color Statements
6. Load Onto Disks
7. Hands-on

References

Richman, Ellen, Spotlight on Computer Literacy. New York: Random House, Inc. 1982.

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SESSION TWELVE

1. Review
2. Session Twelve Outline
3. Programming (FOR, NEXT)
4. POKE, POS, LOOP
5. Hands-on

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SESSION THIRTEEN

1. Review
2. Session Thirteen Outline
3. Computer Assisted Instruction CAI (tutorial, simulations, drill and practice, educational games)
4. Hands-on

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SESSION FOURTEEN

1. Review
2. Session Fourteen Outline
3. Computer Managed Instruction CMI (subject area management programs, test generating programs)
4. Resource People
5. Resource Materials
6. Hands-on

References

Hillsborough County Public Schools, "Language Arts Computer Software Review Elementary Education." 1983.

Nova University, "Human Resources - Summer Institute 1983." 1983.

Skamura, Bob, "A Need to the Novice #3." The Computing Teacher, Oct. 1983.

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SESSION FIFTEEN

1. Review
2. Session Fifteen Outline
3. Application Programs (word processing, data base programs, spread sheet programs)
4. Animation
5. Hands-on

References

Hillsborough County Public Schools, "Language Arts Computer Software Review Elementary Education," 1987.

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SESSION SIXTEEN

1. Review
2. Session Sixteen Review
3. Evaluating Software
4. Software at Crestwood
5. Hands-on

References

Barden, William, "Valuable Tips On How To Buy Software." Popular Computing, Nov. 1983.

Hillsborough County Public Schools, "Language Arts Computer Software Review Elementary Education." 1983.

Rodriguez, Irene, "Location of Computers." 1984.

Rodriguez, Irene. "Computer Software Inventory." 1984.

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COMPUTER SOFTWARE INVENTORY

NAME OF PRODUCT	GRADE	DESCRIPTION OF PRODUCT
Video Math Flashcards	1-5	Two minute math drills
Balloon Bandit	3-8	Challenges math skills
Hickory Dickory	K-6	Traditional and digital clock readings
Dictionary/Library Skills	3-6	Alphabetical order, dictionary usage, bookshelf
Counting	K	Sequential counting to 10
Typo Attack	3-up	To practice touch typing
Lemonade	3-5	Running a lemonade stand (economics)
Gulp Arrow Graphics	2-5	Addition,multiplication, directions, problem-solving
Spelling Genie	3-5	Spelling games using given lists or your own lists

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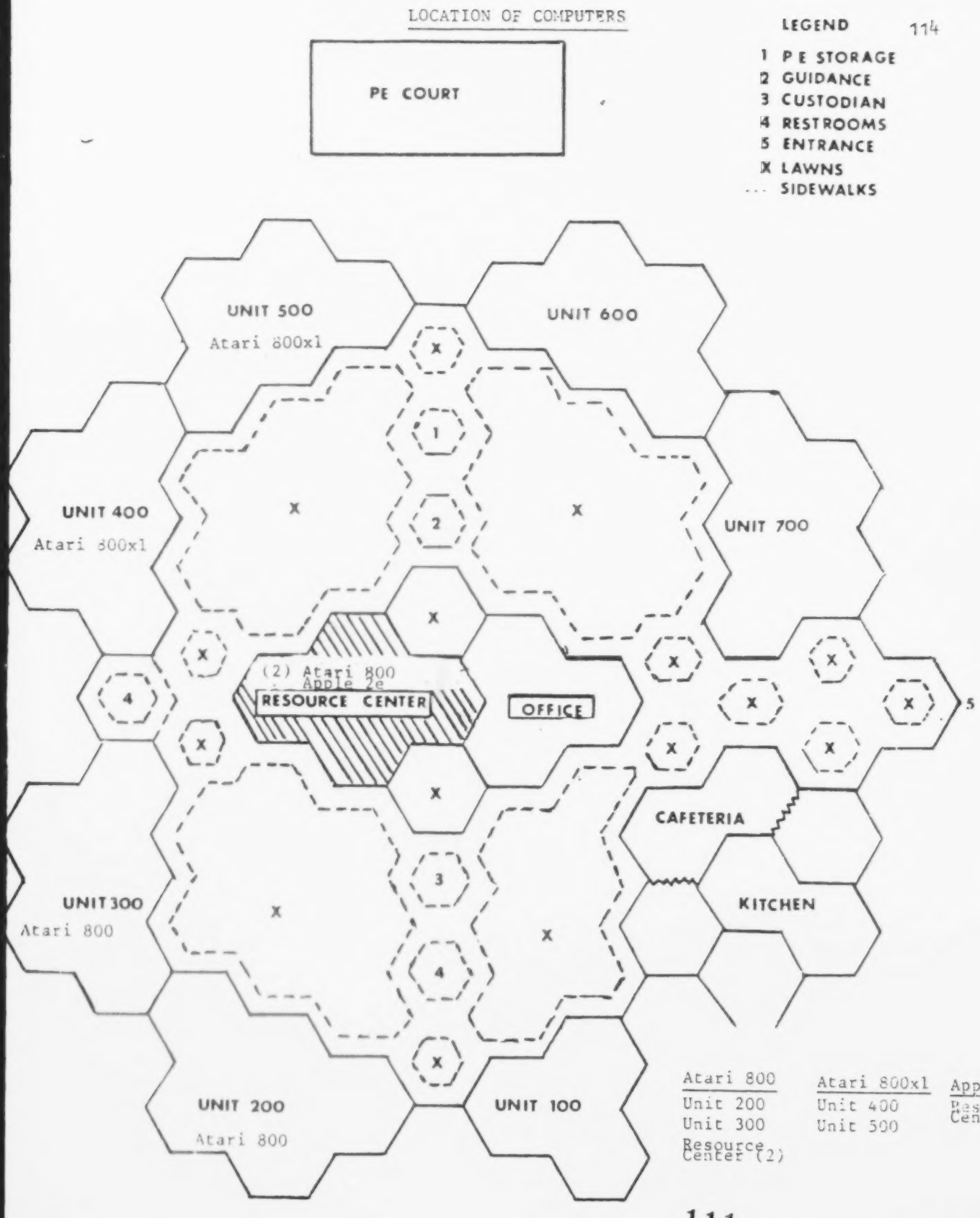
LOCATION OF COMPUTERS



SESSION SEVENTEEN

1. Review
2. Session Seventeen Outline
3. Programs That Make Sounds
4. Copyrights and Law
5. Plan and Develop Programs for Classroom Use
6. Hands-on

References

Bell, Trudy, "Copying Computer Software For Educational Purposes: Is It Allowed?" Personal Computing, Nov. 1983.

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SESSION EIGHTEEN

1. Review
2. Questions
3. Share Ideas Used in the Classroom
4. Post Test
5. In-service Evaluation Forms

References

Rodriguez, Irene, "Computer Literacy Test." 1984.

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SESSION NINETEEN & TWENTY

1. Make-up Classes
2. Extra Help Where Needed
3. Retest
4. Hands-on
5. Resources

References

Mizell, Al and Beebe, Thomas, Computer Education Book of Readings. Lexington, Massachusetts: Ginn Publishing, 1983.

Rodrigues, Irene, "Resource People in Hillsborough County." 198[illegible].

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Resource People in Hillsborough County

Name	Location
Judy Alvarez	Williams
Kathy Bartlett	Citrus Park
Sue Clark	Ruskin
Lynne Gadsen	Carrollwood
Jan Mosier	Bay Crest
Lee Osburn	I.S.C.
Roberta Redding	Mabry
Irene Rodriguez	Crestwood
Penny Smith	Morgan Woods
Debbie Temple	Gibsonton

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APPENDIX M

OUTLINE OF COMPUTER IN-SERVICE

SESSION ONE

1. Course Outline
2. Session One Outline
3. Pretest
4. Rules around Computer (no food, drink, etc.)
5. Care for hardware and software
6. Three parts of a computer (keyboard, monitor, disk drive)
7. Power up/Power down
8. Hands on

SESSION TWO

1. Review
2. Session Two Outline
3. Importance of computers to education
4. Three types of computers (mainframe, microcomputer, minicomputer)
5. Computer history
6. Hands on

SESSION THREE

1. Review
2. Session Three Outline
3. Hardware/software
4. Four operations of the computer (accepts information, processes information, stores information, displays information)
5. Computer terminology
6. Hands on

SESSION FOUR

1. Review
2. Session Four Outline
3. Computer words
4. Two memories (RAM, ROM)
5. Modes (immediate, programming)
6. Hands on

SESSION FIVE

1. Review
2. Session Five Outline
3. Basic commands (RUN, LIST, NEW, PRINT)
4. Computer as calculator (plus, minus, multiply, divide)
5. Hands on

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SESSION SIX

1. Review
2. Session Six Outline
3. Basic Commands
4. Central Processing Unit CPU (control unit, arithmetic unit, register)
5. Flowcharts
6. Hands-on

SESSION SEVEN

1. Review
2. Session Seven Outline
3. Programming Languages (BASIC, FORTRAN, COBOL, LOGO, PASCAL)
4. Disk Operating System DOS
5. Hands-on

SESSION EIGHT

1. Review
2. Session Eight Outline
3. Disk Drive
4. Loading and Unloading Software
5. Programming Commands (LET, GOTO, INPUT)
6. Hands-on

SESSION NINE

1. Review
2. Session Nine Outline
3. Formatting a Disk
4. Write DOS for disk
5. Save - Load Procedures

SESSION TEN

1. Review
2. Session 11 Outline
3. Graphics Modes
4. Text Window
5. Plot,Drawto
6. Hands-on

SESSION ELEVEN

1. Review
2. Session Eleven Outline
3. Graphics 3
4. Designs On Graph Paper
5. Color Statements
6. Load Onto Disks
7. Hands-on

SESSION TWELVE

1. Review
2. Session Twelve Outline
3. Programming (FOR, NEXT)
4. POKE, POS, LOOP
5. Hands-on

SESSION THIRTEEN

1. Review
2. Session Thirteen Outline
3. Computer Assisted Instruction CAI (tutorial, simulations, drill and practice, educational games)
4. Hands-on

SESSION FOURTEEN

1. Review
2. Session Fourteen Outline
3. Computer Managed Instruction CMI (subject area management programs, test generating programs)
4. Hands-on

SESSION FIFTEEN

1. Review
2. Session Fifteen Outline
3. Application Programs (word processing, data base programs, spread sheet programs)
4. Hands-on

SESSION SIXTEEN

1. Review
2. Session Sixteen Outline
3. Evaluating Software
4. Software At Crestwood
5. Hands-on

SESSION SEVENTEEN

1. Review
2. Session Seventeen Outline
3. Programs That Make Sounds
4. Copyrights and Law
5. Plan And Develop A Program For Classroom Use
6. Hands-on

SESSION EIGHTEEN

1. Review
2. Questions
3. Share Ideas Used in the Classrooms
4. Post Test
5. In-service Evaluations

SESSION NINETEEN & TWENTY

1. Make-up Classes
2. Extra Help Where Needed
3. Retest
4. Hands-on
5. Resources

APPENDIX N

IN-SERVICE EVALUATION FORM

COMMENTS: Leadership (competent or otherwise)

Materials: (Nature, variety, availability)

General: (Suggestions for improvement)

FD/1/78

HILLSBOROUGH COUNTY PUBLIC SCHOOLS
Tampa, Florida

INSERVICE EDUCATION PROGRAM
Participant Rating Scale

Component: _____

Date of Participation:

Beginning _____ Completion _____

Director of Activity: _____

The nature and ultimate success of Inservice Education demands that programs offered be responsive to participant needs.

In order to provide the Staff Development Office with feedback which can serve as a necessary basis for program improvement, your opinion is desired concerning various aspects of the Inservice activity named above.

Your time and cooperation in completing this rating scale will be greatly appreciated. It is only through your reactions and involvement that we can bring about effective change in inservice education.

After responding to the enclosed rating form, please return the form and completed answer sheet via school mail to the local workshop director (usually your supervisor.)

John Lizer, Director
Staff Development Office
Instructional Services Center

125

INSTRUCTIONS FOR RATING CRITERIA

Criteria for evaluating this inservice activity are listed at the right. Please complete the evaluation by circling the letter reflecting your judgment of each item according to the scale shown. It is important that you respond to all items. Do not overlook the (F) option where it is appropriate.

A. I strongly agree
B. I agree
C. I agree, with some reservations
D. I disagree
E. I strongly disagree
F. This item does not apply to this workshop.

PROCEDURAL OUTCOMES	1.	A	B	C	D	E	F	A clear statement of the purpose of the workshop was made.
	2.	A	B	C	D	E	F	Objectives were clearly stated at the outset
	3.	A	B	C	D	E	F	Activities were in logical sequence
	4.	A	B	C	D	E	F	Grouping techniques utilized were effective
	5.	A	B	C	D	E	F	Appropriate grouping was done.
PROCESS OUTCOMES	6.	A	B	C	D	E	F	Content level was appropriate for me.
	7.	A	B	C	D	E	F	Appropriate opportunity was given for sharing ideas and/or questions.
	8.	A	B	C	D	E	F	Leaders of this activity were well prepared. (List names and comments on back, if you desire.)
	9.	A	B	C	D	E	F	Directors responded readily to group needs.
	10.	A	B	C	D	E	F	Adequate materials were supplied.
SUMMATIVE OUTCOMES	11.	A	B	C	D	E	F	Program content related directly to stated objectives.
	12.	A	B	C	D	E	F	The program was keyed to my important concerns.
	13.	A	B	C	D	E	F	I will be able to apply what I have learned to job related problems.

PLEASE WRITE COMMENTS AND SUGGESTIONS ON THE BACK

APPENDIX O

TEACHER COMMENTS

" I would like to continue this computer training next year."

"Too bad we didn't have this workshop before we got the computers."

"The children know more about computers because I'm finally teaching it."

"Children's interest in computers has increased with my increased interest."

"Since I've had training my students are using the computers correctly."

"The computers in my unit are finally being used and taken care of."

"Why weren't we trained before we received the computers?"

"Can we have more training next year?"

"When does the next class begin?"

"Will this continue next year?"

"We need training each year."

"All teachers who have computers should be required to attend some kind of training."

"If you're expected to teach computers you must be trained."

"Teachers can't receive the total benefits of having a computer unless they have been trained in their usage."

"I'm glad these computers aren't being wasted anymore."

"I've changed my attitude towards computers in the classroom."

"Computer training should come before computers are placed in the schools."

"Computers are great!"

"This was a needed in-service."

"We need more time for computer training."

"All teachers should experience using computers before trying to teach them."

"This was stimulating!"